

Claims

1. An image display method of image processing and displaying a shot image of the ground surface having been taken with photographic equipment that is mounted on an airframe in the
5 air,

the image display method being characterized in that a shooting position in the air is specified three-dimensionally, a photographic area on the ground surface having been shot is obtained by computation, and a shot image is transformed in
10 conformity with said photographic area and thereafter displayed being superposed on a map of a geographic information system.

2. An image display method of image processing and displaying a shot image of the ground surface having been taken with photographic equipment that is mounted on an airframe in
15 the air,

the image display method being characterized in that a shooting position in the air is specified three-dimensionally, each of a plurality of photographic areas on the ground surface having been continuously shot is obtained by computation, each
20 of shot images is transformed in conformity with said each of the photographic areas, and thereafter said plurality of shot images are displayed being superposed on a map of a geographic information system.

3. The image display method according to claim 2,
25 characterized in that a plurality of shot images to be superposed are partially overlapped with each other, the shot images are moved and compensated so that an overlapping at the overlap part may be of the largest extent, and thereafter are joined.

30 4. The image display method according to claim 2, wherein

a plurality of shot images to be superposed are obtained by sampling the images having been continuously shot in cycles of a predetermined time period.

5 5. The image display method according to claim 1, wherein a photographic area on the ground surface having been shot is obtained by computation based on an inclination and a rotation angle of said photographic equipment with respect to said airframe.

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6. The image display method according to claim 1, wherein a photographic area on the ground surface having been shot is obtained by computation based on an inclination and a roll angle of said airframe with respect to the ground surface.

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7. The image display method according to claim 1, wherein a photographic area on the ground surface having been shot is obtained by computation based on an inclination and rotation angle of said photographic equipment with respect to said
20 airframe, and an inclination and roll angle of said airframe with respect to the ground surface.

8. The image display method according to claim 1, wherein a photographic area on the ground surface is obtained by
25 computation, thereafter an altitude of the ground surface of said photographic area is obtained by utilizing a three-dimensional topographic data including altitude information as to undulation of the ground surface which data has been preliminarily prepared, an altitude of shooting point
30 is computed as a relative altitude obtained by subtracting an

altitude of the ground surface from an absolute altitude of the airframe, and a shot image is transformed in conformity with said photographic area and displayed being superposed on a map of the geographic information system.

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9. An image display method intended to take a shot of the ground surface with photographic equipment that is mounted on an airframe in the air, and to identify situations existing on said ground surface, the image display method being characterized in that:

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a shooting position in the air is specified three-dimensionally, and said airframe positional information, camera information, and airframe information are transmitted in synchronization with an image having been shot; and

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a photographic area on the ground surface having been shot is obtained by computation on the receiving side, and a shot image is transformed in conformity with said photographic area and thereafter displayed being superposed on a map of a geographic information system.

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10. The image display method according to claim 1, wherein a shot image having been superposed on the map can be erased leaving only a photographic area frame.

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11. The image display method according to claim 1, wherein landmarks are extracted from a map of said geographic information system and said shot image respectively, and the corresponding landmarks are compared, whereby a parameter for use in computing a photographic area of the ground surface having been shot is compensated, and a shot image is displayed being superposed

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with high precision on a map of the geographic information system.

12. The image display system according to claim 2, wherein
5 landmarks are extracted from a map of said geographic information system and said plural pieces of images having been continuously shot respectively, and the corresponding landmarks are compared, whereby a parameter for use in computing a photographic area of the ground surface having been shot is compensated, and a
10 shot image is displayed being superposed with high precision on a map of the geographic information system.

13. The image display system according to claim 11, wherein
a parameter to be compensated is changed in accordance with
15 the number of landmarks having been extracted.

14. The image display method according to claim 11, wherein
an inclination and a rotation angle of said photographic equipment with respect to said airframe are compensated based
20 on the landmark having been extracted, and a photographic area on the ground surface having been shot is computed.

15. The image display method according to claim 11, wherein
an inclination and a roll angle of said airframe with respect
25 to the ground surface are compensated based on the landmark having been extracted, and a photographic area on the ground surface having been shot is computed.

16. The image display method according to claim 11, wherein
30 2 points of landmarks having been extracted are used, an altitude

of said airframe is compensated based on a distance between two points, and a photographic area of the ground surface having been shot is computed.

5 17. The image display method according to claim 11, wherein an average value of parameter compensation values between 2 points of each landmark is used in the case of not less than 3 landmarks having been extracted, and a photographic area of the ground surface having been shot is computed.

10 18. The image display method according to claim 12, wherein in the case of absence of the corresponding landmarks at the time of extracting landmarks from a map of said geographic information system and each of said plural pieces of shot images
15 respectively, a parameter for use in computing a photographic area on the ground surface having been shot is compensated based on a compensation value at the time of having extracted a landmark last, and shot images to be joined partially overlapped with each other and displayed being superposed on the map are moved
20 such that an overlapped state at said overlap part is of the largest extent, and thereafter are joined.

19. The image display method according to claim 12, wherein landmarks are extracted from a map of the geographic information
25 system and each shot image respectively, a parameter for use in computing each photographic area of the ground surface having been continuously shot is compensated based on a current compensation value, getting back to a halfway point between the shot image of when a landmark has been extracted last time
30 and the current shot image, and said plural pieces of shot images

are displayed being superposed with high precision on a map of the geographic information system.

20. The image display method according to claim 16, wherein
5 an altitude compensation value is registered at a point of land
where altitude compensation processing of a shot image is
executed due to coincidence of the landmarks, and said registered
altitude compensation value can be utilized again as a reference
value of altitude compensation in the case of flying at a point
10 of land close to said point from the next time on.